

What is claimed is:

1. An implantable device comprising:
 - an autonomic tone sensor to provide a tone signal as a function of a sympathetic nervous system and as a function of a parasympathetic nervous system for a predetermined period of time;
 - an activity sensor to provide an activity signal as a function of physical activity corresponding to the predetermined period; and
 - an information processing unit connected to the autonomic tone sensor and connected to the activity sensor and adapted to generate an output signal as a function of a relationship between the tone signal and the activity signal.
2. The device of claim 1 wherein the autonomic tone sensor includes at least one sensor selected from any combination of a group including a heart rate sensor, a nerve electrode, a biochemical sensor, a ventilation sensor and a muscle activity sensor.
3. The device of claim 1 wherein the activity sensor includes an adaptive rate therapy sensor.
4. The device of claim 1 wherein the activity sensor includes at least one sensor selected from any combination of a group including a minute ventilation sensor, an accelerometer, a respiratory sensor, a QT interval sensor, an impedance sensor, a contractility sensor and a depolarization sensor.
5. The device of claim 1 further including a telemetry circuit connected to the information processing unit to communicate with a remote device.
6. The device of claim 1 further including a therapy circuit connected to the information processing unit.

7. The device of claim 6 wherein the therapy circuit includes a pulse generator.
8. The device of claim 1 further including a memory connected to the information processing unit and adapted to store a code as a function of the output signal.
9. The device of claim 1 wherein the autonomic tone sensor includes an implanted electrical lead.
10. The device of claim 1 wherein the information processing unit includes a processor.
11. A system comprising:
 - an autonomic tone sensor to generate a tone signal as a function of a sympathetic nervous system and a parasympathetic nervous system for a period of time;
 - an activity sensor to generate an activity signal as a function of physical activity during the period of time;
 - an information processing unit connected to at least one of the autonomic tone sensor and the activity sensor, wherein at least one of the autonomic tone sensor and the activity sensor is adapted for implantation; and
 - a telemetry circuit connected to the information processing unit and adapted to communicate wirelessly.
12. The system of claim 11 further including a remote processing unit in communication with the telemetry circuit and adapted to receive the tone signal and the activity signal and generate an output as a function of the tone signal and the activity signal.
13. The system of claim 11 wherein the autonomic tone sensor includes a heart rate sensor.

14. The system of claim 11 wherein the activity sensor includes an accelerometer.
15. The system of claim 11 wherein the activity sensor includes an exercise machine.
16. The system of claim 15 wherein the exercise machine includes at least one selected from any combination of a group including a treadmill, a bicycle, a climbing machine, a weight lifting machine, a weight moving machine and a rowing machine.
17. The system of claim 11 further including a therapy delivery circuit coupled to the information processing unit to deliver therapy to a selected organ.
18. The system of claim 11 further including a monitor coupled to the information processing unit.
19. The system of claim 11 wherein the telemetry circuit is adapted to communicate using a wide area network.
20. A method comprising:
generating an autonomic tone signal as a function of autonomic tone detected during an epoch using an implantable sensor;
obtaining an activity signal as a function of physical activity during the epoch;
identifying a relationship between the tone signal and the activity signal using an implantable processor; and
generating an output signal as a function of the relationship.
21. The method of claim 20 wherein generating an autonomic tone signal includes determining heart rate variability.

22. The method of claim 21 wherein determining heart rate variability includes measuring intervals between successive heart beats.
23. The method of claim 20 wherein obtaining the activity signal includes receiving a minute ventilation signal.
24. The method of claim 23 wherein receiving the minute ventilation signal includes determining an impedance.
25. The method of claim 20 wherein obtaining the activity signal includes receiving an acceleration signal.
26. The method of claim 20 further including classifying the autonomic tone signal as a function of the activity signal for the epoch.
27. The method of claim 26 further including comparing the epoch with stored data accessible to the implantable processor.
28. The method of claim 27 wherein the stored data includes data derived from a selected population.
29. The method of claim 20 wherein generating an output signal includes providing a warning.